Volunteer Firemen

DECEMBER 1941

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
60 Batterymarch Street Boston, Massachusetts

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Volunteer Firemen

Volume 8 Number 12

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THE cover picture this month is furnished through the courtesy of Commander R. B. Hall, U. S. Coast Guard, Aide to the Captain of the Port of Norfolk. The picture shows the destruction by fire on September 24, 1941, of a waterfront grain elevator owned by the Norfolk and Western Railroad. The Norfolk Fire Department under Chief Edward J. Cannon placed fourteen hose streams in operation and successfully protected exposed structures. The loss to the elevator and its contents was more than $180,000

FIRE chiefs and city officials have been wondering about the matter of liability of cities for injuries to or by volunteers participating in national defense activities. The September, 1941, issue of the Municipal Law Journal issued by the National Institute of Municipal Law Officers, Washington, D. C., presents a helpful study of this subject and reaches the following conclusions: (1) cities are not liable to volunteers who are injured while receiving instruction from members of the regular city fire department, and city firemen will be performing a governmental function so no municipal liability will arise; (2) state workmen's compensation laws probably could not be construed as applicable to injuries received by such volunteers, since no employee-employer relation exists.

DEPARTMENTS considering the purchase of new apparatus may be wondering about the prospects of geting deliveries. At the present time fire apparatus being built to manufacturers' standard designs is coming through without too much delay. However, it appears that cities may be held up on orders for special equipment. This is particularly likely in cases where required materials come under the restrictions placed by the U. S. Office of Production Management as reported in the November issue of VOLUNTEER FIREMEN. As of October 31, 1941, builders of essential fire apparatus needed to fill defense orders have had the assistance of an A-2 preference rating in acquiring the necessary materials. However, the preference order issued on that date by U. S. Priorities Director Nelson specifically restricts the use of the A-2 rating to the deliveries of material which will be incorporated in the finished product required to fill defense orders. The A-2 rating cannot be applied to non-essential items listed in the recent letter sent by OPM to manufacturers of motorized fire apparatus. Apparatus considered as essential for defense purposes is defined as that intended for the U. S. Army and Navy, or for shipment under lease-lend commitments to countries resisting aggression, or to American fire departments able to get an A-10 priority rating or better. Thus it will be seen that an A-10 priority must be obtained on a contract by a city in order to get in this favored class.

WHAT the Province of Ontario and the Dominion of Canada are doing to provide for fire defense against possible enemy attacks with incendiary bombs was related by Fire Marshal W. J. Scott, K. C., of Ontario, at the recent convention of the Dominion Association of Fire Chiefs at Peterborough, Ontario. Marshal Scott indicated that defense authorities in both Canada and the United States believe that long range bombers may make surprise attacks on this continent if the battle of the Atlantic appears to be going against Germany. He reported that his office has made a detailed survey of 57 municipalities in the Province, designated by the Canadian Department of National Defense as "vulnerable" and requiring ARP organization.

To provide the ordinary peacetime fire fighting requirements needed to bring the local protection of these 57 municipalities up to proper standards his office has recommended that a minimum of 26 pumpers and 9 ladder trucks, 38,000 feet of 2½-inch hose, and 243 more permanent firemen be added at once. To supply the emergency fire apparatus and equipment needed by these same fire departments the Ontario Civilian Defense Committee has formally requested the Dominion government to supply nearly 400 auxiliary pumpers (front end pumpers mounted on commercial trucks, and trailer units). These emergency pumpers will be in addition to 206 regular pumpers now in service in these municipalities. Other emergency equipment requested includes 200,000 feet of hose, 40,000 stirrup pumps, and supplemental water storage facilities.

LAST month ten departments with 91 men joined the Volunteer Firemen's Section for the first time. Sixty-one departments with 1,660 men renewed membership. This makes a total enrollment of 729 departments and 14,949 men. The following departments are newly enrolled:

El Cajon Fire Department, El Cajon, California.

Glen Echo Volunteer Fire Department, Glen Echo, Maryland.

Wheaton College, Norton, Massachusetts.

Cornell Hook & Ladder Company, New Baltimore, New York.

Van Wert Fire Department, Van Wert, Ohio.

Broomall Fire Company No. 1, Broomall, Pennsylvania.

Glenolden Fire Company, Glenolden, Pennsylvania.

Hummelstown Chemical Fire Company No. 1, Hummelstown, Pennsylvania.

Kermit Volunteer Fire Department, Kermit, Texas.

Lancaster Fire Department, Lancaster, Wisconsin.

THE estimated U S. fire loss for October, 1941, according to the National Board of Fire Underwriters is $30,833,000. This figure is based on notices of incurred loss received by company members of the Board, plus an allowance for unreported and uninsured losses. Losses for the first ten months of 1941 are $12,870,480 more than the losses for the same months last year. The following table shows the losses for the first ten months of both 1940 and 1941.

	1940	1941
January	$36,260,650	$26,470,000
February	34,410,250	26,102,000
March	29,788,800	31,471,000
April	26,657,190	29,330,000
May	23,446,590	25,637,000
June	19,506,000	24,943,000
July	20,322,800	23,698,000
August	20,722,100	24,122,000
September	21,198,000	24,668,000
October	22,091,140	30,833,000
Total 10 months	$254,403,520	$267,274,000

When an Air Raid Is Coming!

LOCAL FIRE DEPARTMENTS WILL GET NOTIFICATION THROUGH AN AIRCRAFT WARNING NET UNDER DIRECTION OF THE ARMY

Many of the questions being asked by fire departments about air raids have been authoritatively answered by Lt.-Col. George J. B. Fisher, Executive, Chemical Warfare School, Edgewood Arsenal, Maryland, in a recent statement in the Chemical Warfare Bulletin, published by the Chemical Warfare Service, U. S. Army. Col. Fisher's article deals with military defense and civilian defense. Portions particularly significant to fire department operations are digested here.

MODERN aircraft are capable of cruising continuously for thousands of miles, carrying munition loads of as much as five tons. These facts explain why it is possible for modern air power to reach far into the interior of an opponent's territory and there wreak havoc and destruction at almost any point it elects. It means that the inhabitants of cities, who in the past have relied on the military for their defense, must today be prepared to undertake special tasks for their own protection.

The first step in forestalling this type of aerial invasion is obviously to strike down and immobilize the enemy's air power. The farther this can be done from our own shores, the better are our chances of escaping the effects of aerial invasion.

If we cannot keep invading aircraft beyond our own horizons, then we must maintain control of the air over our own national territory. Control of the air means that we are at least able to intercept and fight it out with invading bomber formations before they reach their targets—usually the populous city or important industrial facility that is marked for destruction.

In order to do this, we must first have timely warning of the approach of enemy aircraft. For this purpose an aircraft warning net is set up, consisting of innumerable sentries stationed at lonely listening posts on the fringes of our territory and at sea. These sentries, watching continually by day and night, flash the warning of approaching danger—by telephone or radio — to what is known as a "filter center" or a central point into which may come the reports of a great many watchers.

The filter center is thus enabled to absorb all the messages of individual observers. These are used to quickly plot the course of the approaching enemy. The filter center then relays this information to the regional center under which it operates. The aircraft warning net with its filter center and regional center are all installations under control of the United States Army Air force.

Our regional center to which warning of approaching aircraft has been transmitted has now to take some very quick and vitally important action.

In the first place, it must notify the intercepter commander of the location, speed and direction of the approaching enemy aircraft in order that fighter planes may take off instantly and engage the enemy as far as possible from his objective.

At the same time, other elements of the military defense are likewise alerted. For example, the appropriate anti-aircraft artillery commanders are warned and balloon barrages are placed in position. When the attack is coming at night, blackouts are ordered.

In the present stage of the development of aerial warfare, however, it is not humanly possible for this military defense to prevent in every instance all the elements of the hostile fleet from breaking through and reaching its target.

We can realize to some extent why this is so by remembering how difficult it is to see even in broad daylight an airplane flying at an altitude of 20,000 feet. Not only can an approaching airplane escape our vision, but by shutting off its motors and gliding down from high altitudes it can avoid being picked up by our most acute listening apparatus.

WHAT military defense against aerial invasion may reasonably be expected to accomplish is to make the toll of enemy bombers shot down so heavy—say ten percent of the total —as to render this form of attack prohibitive. The military defense can also force the enemy bomber to fly so high and under such unfavorable circumstances as to deny him accurate aim. It can force the enemy to abandon large-scale daylight bombing operations and resort to night attacks which are much less effective. But the military defense can never assure, either here or abroad, that hostile aviation will not succeed in dropping bombs on some part of our national territory.

Then, it is necessary to warn all cities and important industrial facilities in the path of the approaching aircraft of the impending danger in order that measures of civilian protection may be put into effect. Once the warning is given, it is the properly constituted civilian authorities who must put into effect appropriate measures of civilian protection.

To illustrate how this works it may simplify the problem to consider for a moment the warning service worked out by the Chinese to protect their inland capital at Chungking.

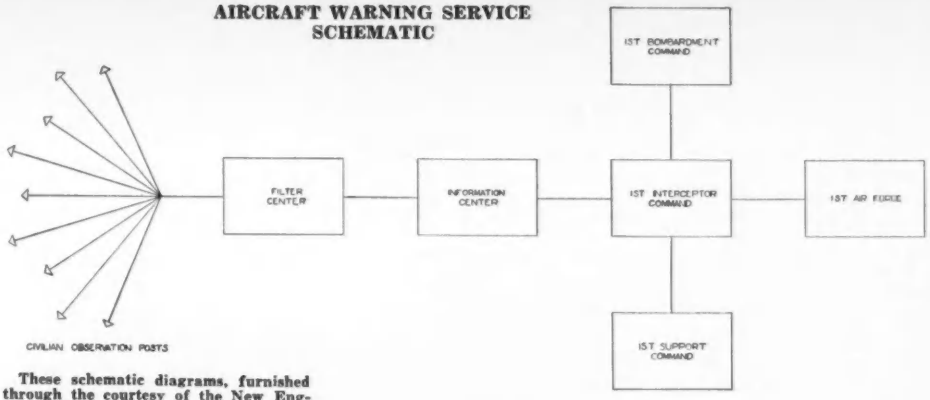
Chungking is an extremely inacessible point in the interior of China. When the Japanese set out to raid this city, they must travel a distance of several hundred miles over an area which offers no attractive targets for bombing attack. Therefore when Japanese planes are seen heading out on a bombardment mission in the general direction of Chungking, there is no question in the minds of the Chinese warning net operators where they are going. Not only is the objective clear, but the Chinese are able to predict with accuracy when the bombs will begin to fall on Chungking and to predict this from one to two hours in advance. It is a simple matter to telephone or radio the warning to the Chinese military and civil authorities at the capital and to afford ample time for even a leisurely evacuation of the city.

This problem however is by no means so simple when applied to the continental limits of the United States.

Let us assume, for instance, that a hostile air force is reported by observers stationed on the northeastern tip of Maine. This force is seen approaching from the direction of Newfoundland and heading generally toward New England. It is quite impossible to determine from this information which of a thousand cities, towns or important industrial facilities scattered from Boston to New York City might be the object of the coming attack. It is also bad business at this stage to become excited and warn everyone in this large and busy area and thereby interrupt the whole social and economic activity of the territory.

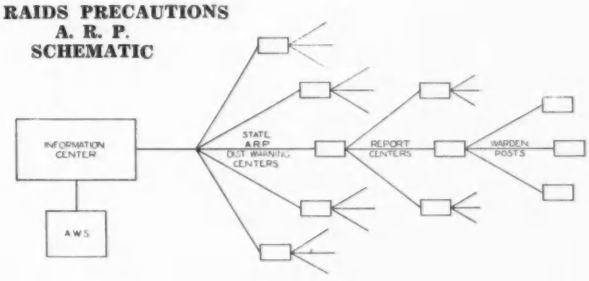
However, certain people must be advised that the hostile air force will strike somewhere in New England. This therefore calls for warning message Number One, which may be in the nature of a *secret* warning alerting the

AIRCRAFT WARNING SERVICE SCHEMATIC



These schematic diagrams, furnished through the courtesy of the New England Regional Headquarters, U. S. Office of Civilian Defense, show how an aircraft warning net works. Civilian observation posts under army command report the approach of planes to their filter center from which word is relayed to an information center. The information center first reports the approach of hostile planes to the air corps interceptor command from which planes take off in an effort to prevent the invaders from reaching their target. Then as the progress of invading planes is plotted, state or district warning centers are notified (as shown in the lower chart), and word is passed on to local report centers and warden posts. This warning system was given an extensive tryout in air corps maneuvers along the Eastern seaboard during October.

AIR RAIDS PRECAUTIONS A. R. P. SCHEMATIC



military and giving a flash to only the highest civilian authorities — possibly the governors of states and mayors of certain important cities — but withheld as a general proposition from the man on the street and the worker in the factory.

Any further general warning at this particular point would only be playing into the hands of the enemy, who would be delighted to be able to turn our most important industrial area into a turmoil by merely feinting with a few bombardment airplanes.

However, as the enemy approaches and his path is quickly and clearly plotted it may be possible within a space of minutes to form a definite idea of his objective. So as the flight progresses it becomes possible to give the second or standby warning, what might be called a "probability of attack" warning. This second warning justifies the initiation of certain general defense measures, such as the assembly of auxiliary police, fire, and medical units, in appropriate cities, towns and isolated industrial facilities.

THE third type of warning to be given by the military authorities is an "all-out alert," under which everyone in the area most likely to suffer attack is notified. It should be noted that the military does not notify the man on the street, but notifies the appropriate civilian authorities, who in turn, according to the prearranged air raids protection measures in vogue in that locality, spread the warning by means of sirens, whistles, telephone, radio, and other means.

All this happens rapidly. The enemy air fleet is traveling, let us say, at a speed of 300 to 400 miles per hour. That means that the enemy will travel from the frontier of northeastern Maine all the way to New York City in no more than an hour and a half.

The civilian agencies must undertake at this point an equally important and in some ways more complicated job of actually carrying into effect prearranged measures of passive defense.

This work must be done with courage and competence. The courage we know our populace possesses. But courage alone is not enough; and even this can be quickly vitiated unless we know what we are doing and are competent to do in an expeditious manner those things that must be done.

And our civilian protection measure will, for the most part, be carried out under the handicap of darkness, with every vestige of artificial light that may help to guide an enemy aviator blotted out. Day attacks come only in modern aerial warfare when the defender has lost control of the air.

The problem of civilian protection, then, is this: What must be done when the air raid siren sounds at night?

One of the first things, of course, is to call to stations those active groups who will cooperate with the city's permanent public safety agencies, such as air raid wardens, auxiliary police, auxiliary fire fighters, decontamination squads, medical and first aid groups.

Next — or even simultaneously — the general public must be warned, down to the last man, woman, and child, to take shelter; either public or private.

Then—during the raid and even for some time after the raid—the situation calls for disciplined control all along the line while steps are taken to counteract the effects of a rain of high explosive and incendiary bombs and poison gas, any or all of which may be loosed simultaneously.

In other words, when the air raid warning is received the civilian protection PLAN is put into operation — a plan so complete and far-reaching as to cover, in some degree at least, the activity of every inhabitant in the city.

So the keystone of passive defense is a PLAN: first a master plan developed by the State Defense Council; then county and municipal plans coordinating with this master plan; and such other subordinate plans as may be necessary to the defense of isolated industrial units.

This planning for passive defense—and the organization and operation under these plans—are all aspects of the protection of civilian life and property which under the American form of government are functions of local civilian authority. The Federal Government can and will advise on technical features of civilian defense, but it does not propose to usurp from local government its responsibilities in this field.

New Hazards of Dry Cleaning

By Robert S. Moulton
Technical Secretary, N.F.P.A.

THE shortage of chlorine due to its extensive use for National Defense manufacturing is resulting in a shortage of carbon tetrachloride and other non-combustible or so-called synthetic solvents used for dry cleaning. A serious hazard is being created where combustible solvents are substituted for non-combustible solvents.

The dry cleaning industry for many years was considered inherently hazardous. A long record of fires and explosions made fire chiefs and insurance men wary of the hazard and there were few dry cleaners who had been in the business for a long time who did not show scars from burns. As a result of the fire experience, the industry was largely regulated by laws and ordinances and its operations were restricted to separate buildings well away from locations where large numbers of persons congregate and well away from high value districts. This was on the theory that fires and explosions in this process were more or less inevitable and that the business should accordingly be conducted in such a way that the fires and explosions that were bound to occur would cause a minimum of damage to other property and would not needlessly endanger the lives and safety of the public.

Over a period of years research in the industry resulted in the development of safer methods. Special forms of extinguishing equipment, new types of cleaning machinery designed to use gasoline and similar solvents more safely, special types of construction, electrical installation, etc., reduced the hazard. One very significant factor was the development of so-called "Stoddard Solvent" and other special solvents in this class which are specially refined petroleum products designed to have the cleaning properties of gasoline but having fire hazard properties only in the same class with kerosene. The use of these safety solvents serves considerably to reduce the hazard, but even where the safety solvent is substituted for gasoline or naphtha, the business of dry cleaning involves special hazards which call for its restriction to isolated locations, except under certain special conditions which will be discussed below.

In recent years there has been a great increase in small-scale dry cleaning operations using special equipment designed for carbon tetrachloride and other similar non-combustible solvents. Small machines involving a much smaller investment than standard equipment of the regular dry cleaning plant have been installed in small laundries and shops of one kind or another. Often these are located in buildings housing a large number of people in the congested business districts of cities. Their presence has been permitted only because the solvents used are non-combustible and therefore there is, in theory at least, no fire and explosion hazard.

NOW that the supply of non-combustible solvents is curtailed, the operators of these small cleaning plants are faced with a difficult problem. They are under a considerable pressure to continue their business and are likely to do so using any solvent they can get without regard to the fire and explosion hazard, unless it is called very forcefully to their attention by fire authorities. The use of ordinary naphtha or gasoline presents an obvious hazard. The use of the so-called safety solvents with a flashpoint of around 100° to 140° also presents a hazard but not so obviously. These high flashpoint solvents will not normally give off explosive vapors so long as the temperature is kept below the flashpoint of the solvent. However, these "safety" combustible solvents generally leave an odor in the garments that are cleaned unless heat is applied in the drying process. Under ordinary conditions it is necessary to heat the material to higher than the flashpoint of the solvent in order to secure satisfactory drying and deodorization. When a combustible "safety" solvent is heated to above its flashpoint, it may be just as dangerous as gasoline or naphtha under ordinary temperatures.

There is available special equipment in which these combustible "safety" solvents can be used with reasonable safety. Such equipment involves special safeguards in the drying operation to prevent the development of explosive mixtures. Unless the small dry cleaner who is now located in a building of multiple occupancy in a business district can secure an adequate supply of a non-combustible solvent or has special equipment of the type necessary to use the 100° to 140° solvents safely, the only thing he can do is to discontinue his cleaning in that location and have this work done somewhere else where it will not be a public menace.

Portland, Me., Machine Shop Fire Impedes Defense Production

FLAMES destroying the machine shop of the Southworth Machine Company at Portland, Maine, on October 26, 1941, added another to the long list of fires which set back U. S. defense production. An old 1-story and basement brick joisted shop was being used to manufacture airplane parts. It was located in the Morrill's Corner section about three miles from the heart of the city. There were no sprinklers or automatic fire alarm service although a sprinkler system had recently been ordered.

The fire started about 1:16 A. M. Sunday morning while five workmen and two watchmen were on duty in the plant. They fought the fire with extinguishers and reportedly attempted to telephone an alarm but found the phone out of service. The first alarm to the fire department was sent over an alarm box some distance away by persons who saw the flames. They directed firemen to another industrial plant across a railroad right-of-way from the machine shop, necessitating a half-mile detour to reach the fire.

When firemen arrived, the 158-foot-long machine shop area was involved from end to end. First streams were directed to cut off the spread of the fire through open doors leading to adjoining finishing and boiler room sections. These efforts were largely successful. Nine engine and three ladder companies responded to four alarms and held the fire to the area involved upon arrival.

Firemen at Portland, Maine, shown fighting fire that destroyed the Southworth Machine Company plant, engaged in the manufacture of airplane parts needed for defense. It is reported that the production of 8,000 workmen in other plants is affected by this loss. Employees and watchmen fought the fire with hand extinguishers. The first alarm to the fire department came from a public box some distance away and firemen were directed to another plant. An automatic sprinkler system was "on order."

"PEACE ON EARTH!"

A true Christmas fire prevention story as told by N.F.P.A. Member R. D. MacDaniel of Indianapolis

TWO or three years ago at a Christmas party for children, I spent what was, I think, the most uncomfortable hour of my life. It was in the hall of a large church, festooned with decorations of red and green, with holly and evergreen branches and, of course, a large and beautifully decorated tree —a typical setting for a joyous and care-free children's party.

The floor of the hall was filled with chairs—temporary, folding chairs that gradually edged out into the already narrow aisles with each wiggle of an excited youngster. As my wife and I sat there in the rear of the room—the boy was, of course, as near the stage as he could get—I began to speculate on just what could happen if by some chance the tree or the decorations might catch fire.

There was a possibility that the tree and the decorations had been flameproofed—about one chance in a hundred, or less. The chance didn't reassure me. The arrangement of the decorations was such that a flame in any part of the large auditorium would spread rapidly around the walls and overhead. But then, I thought, this is a fire-resistive building and these decorations could not possibly cause enough heat and flame to seriously injure these people.

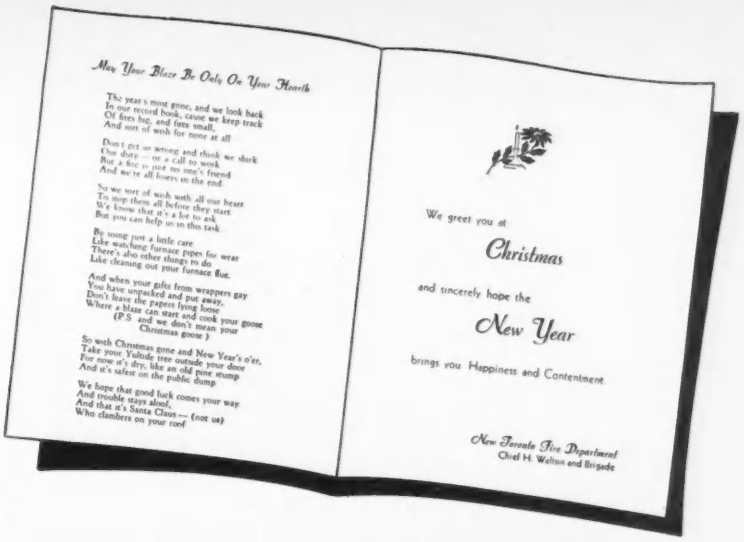
Just then a youngster in front of us noticed his buddy a few rows distant. He popped to his feet—and his chair tipped over with a tremendous clatter. Yes, I thought, that is exactly what would happen if fire should start—and three or four hundred children mixed up with as many overturned chairs on a slippery floor with fire spreading overhead could mean just one thing — panic.

So there I sat—and hoped. I had just one reassuring thought; there was no apparent means for a fire to start for the only special lighting effects were limited to those on the Christmas tree and they were electric lights. So, I decided to quit worrying, but as we sat there while the room gradually filled with eager children and a few elders my mind dwelt alternately on the possibilities and on the probability that nothing was likely to happen because there just wasn't anything to start a fire.

Then the organ began to play — a prelude to the exercises that were to precede the festivities. The house lights were dimmed and a chorus of childish voices raised in an old Christmas carol came from the rear of the room. Slowly down the crowded aisle came some fifty children—and each was gowned in a flimsy robe and carried a lighted wax candle!

Alternately I prayed and swore as that procession slowly made its way to the front of the auditorium. Here a boy, his attention distracted by a friend in the audience, almost ran into a little girl preceding him. There, another boy stubbed his toe on a projecting foot but caught himself in time. A pretty little girl, going up the steps on to the stage, almost tripped when she stepped on the skirts of her robe. And then the fifty of them crowded together on the stage, lighted candles in close proximity to flimsy gowns,—fifty shifting and twisting youngsters—and sang, "Peace on earth. . . ."

Within thirty minutes it was over — and nothing had happened. I hadn't had a good time. I was wet with perspiration. I was physically weak. But I was devoutly thankful. Nobody has any right to place in jeopardy the lives of little children—even to hear them sing, "Peace on earth. . . ."


May Your Blaze Be Only On Your Hearth
The year's most gone, and we look back
In our record book, cause we keep track
Of fires big and fires small,
And sort of wish for none at all
Don't get us wrong and think we shirk
Our duty — or a call to work
But a fire is just no one's friend
And we're all losers in the end.
So we sort of wish with all our heart
To stop them all before they start
We know that it's a lot to ask
But you can help us in this task.
By using just a little care
Like watching furnace pipes for wear
There's also other things to do
Like cleaning out your furnace flue.
And when your gifts from wrappers gay
You have unpacked and put away,
Don't leave the papers lying loose
Where a blaze can start and cook your goose
(P.S. and we don't mean your Christmas goose.)
So with Christmas gone and New Year's o'er,
Take your Yultide tree outside your door
For now it's dry, like an old pine stump
And it's safest on the public dump.
We hope that good luck comes your way
And trouble stays aloof,
And that it's Santa Claus — (not us)
Who clambers on your roof
We greet you at
Christmas
and sincerely hope the
New Year
brings you Happiness and Contentment.
New Toronto Fire Department
Chief H. Welton and Brigade

LAST year the Christmas Card sent out by the New Toronto, Ontario, Fire Department proved so popular when reproduced in VOLUNTEER FIREMEN that we have reproduced above another of these very clever fire prevention messages sent out by this live wire member of our Volunteer Firemen's Section. Every fireman will agree that Christmas should be a time of joy and happiness. A word of warning from the fire department to the citizens of each community will help to prevent needless fires which have in the past so frequently brought tragedy during the Christmas season.

Iowa Survey Shows Response to Rural Fires

STATE Fire Marshal John W. Strohm of Iowa announces that of 258 fire departments answering a recent inquiry, 222 or nearly nine-tenths report that they respond to farm fire calls. There are approximately 675 fire departments in Iowa.

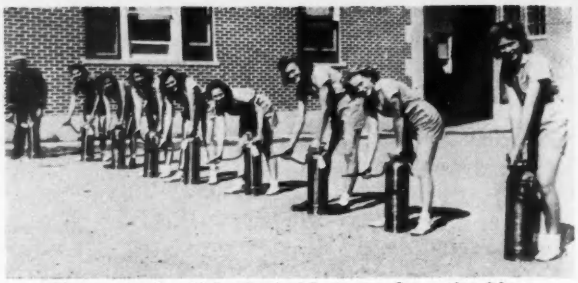
Flammable Fluid Placed in Fire Extinguishers by Error

SEVERAL N.F.P.A. members have called our attention to an occurrence reported from Kansas where a number of fire extinguishers were reportedly filled with highly flammable carbon bisulfide instead of the proper vaporizing liquid having a carbon tetrachloride base.

According to newspaper accounts tragedy was averted when an extinguisher which leaked after it was refilled by a travelling salesman was taken to the Arkansas City Fire Department for repair. Firemen noticed the odor of the carbon bisulfide, squirted some of the fluid on a rag and applied a match. It exploded. State Fire Marshal Clyde Latchem found out who the salesman was and sent him back over his territory to properly refill the extinguishers.

The salesman is reported to have blamed this blunder on an error in buying supplies with which to recharge the fire extinguishers. However, it presents just one more reason against the practice of using commercial chemicals for recharging extinguishers instead of using the proper extinguishing fluid supplied by the manufacturers of fire extinguishers. Evidently the salesman intended to use commercial carbon tetrachloride to refill the extinguishers but was given the wrong chemical. Nevertheless, commercial carbon tetrachloride is not recognized as a substitute for the proper vaporizing liquid because of its tendency to cause clogging and corrosion.

Fort Collins, Colorado, Fire Department. (Member N.F.P.A.).

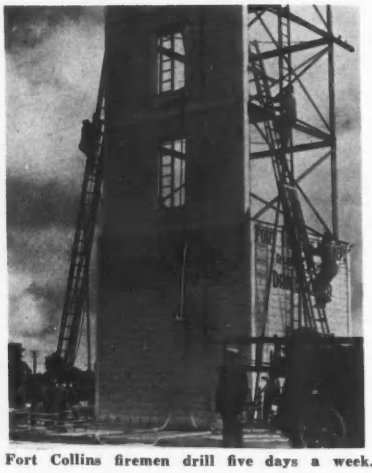


Fireman teaches high school girls to use fire extinguishers.

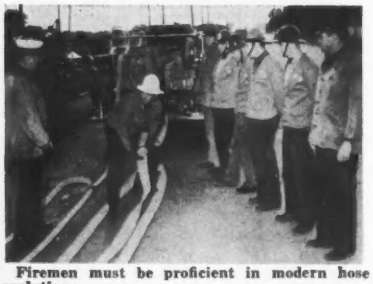
A LITTLE DEPARTMENT THAT PACKS A PUNCH!

FOLKS IN FORT COLLINS, COLORADO, HAVE REASON TO BE PROUD OF THEIR FIRE FORCE

Descent on a life line from top of drill tower.



Fort Collins firemen drill five days a week.



Firemen must be proficient in modern hose evolutions.

THAT mere size is not the most important measure of an effective fire department is evidenced by the accomplishments of the thirteen-man fire force protecting the 12,000 people of Fort Collins, Colorado. In 1940, this little department, under the direction of Chief T. P. Treadwell, won fifth place among all the cities of the United States for its Fire Prevention Week activities. Fire prevention activities that helped to bring this high rating included the distribution of fire prevention literature, radio talks, school plays, fire drills, addresses before luncheon clubs and many other items. An outstanding feature was a movie made locally, entitled "Know Your Fire Department."

However, Fort Collins firemen do not depend upon speech making and other forms of public appeal alone to prevent fires. They also do a lot of leg work in making some 10,250 inspections during the year. The four-man fire prevention bureau, organized in the department in 1930, makes weekly inspections of all industrial and mercantile properties in the city. An excuse that there are only six firemen on duty on each shift, is not used to prevent regular inspection work every week-day. A radio equipped car used by the inspection force kept the inspectors available for fire duty at all times.

Dwellings are not excluded from the fire inspection program. Twice each year off-shift firemen inspect every dwelling in the city.

As a result of the fire prevention activities there were only 80 building fires in Fort Collins last year. Over a 10-year period the average annual fire loss has been below 40 cents per person.

In addition to their effective work in preventing fires, Fort Collins firemen are ever seeking to improve their efficiency as a fire fighting force. The four-story steel, frame enclosed, drill tower is used five days each week. An average of two hours each week day was devoted to various forms of training last year.

For fire fighting in the city, the department operates two pumpers and a ladder truck. In addition there is a rural fire truck which in 1940 covered 209 miles while answering 22 calls outside the city but was in constant touch with headquarters by radio. Off duty firemen fill in at the station while the rural truck is out of the city.

Careful records are kept of all fire department operations and include records of personnel, apparatus maintenance, fires, inspections and other items. The department publishes an attractive illustrated annual report that would be a credit to any large city fire department. It gives the taxpayers complete information on departmental activities.

Service to the public by firemen is not limited to fire prevention and fire fighting. Fort Collins firemen have a well trained first aid squad. Last year firemen revived the unusually high proportion of 8 out of 10 of the inhalator patients they were called upon to aid.

The fire department in cooperation with the local police maintain an arson investigation squad.

At the present time Fort Collins firemen are actively organizing the entire community and nearby rural areas for fire defense. An auxiliary fire department and fire prevention organization has been formed and is being trained in a "School of Emergency Fire Service Responsibility." The organization will have divisions covering protection of business houses, schools, public buildings, residential areas, individual dwellings, and rural areas. The department has provided a defense trailer truck carrying pump, foam generator, monitor nozzle and other equipment.

"Something sort of determined about these Macks . . . Huh?"

Mack Type 80 pumper recently delivered to the Dept. of Forester and Fire Warden of Los Angeles County, Calif. Used for combating brush and forest fires, it is equipped with a tank for carrying 600 gallons of water.

● Fire fighting's a tough job—but the tougher the job the better those Mack power-houses show up!

MACK FIRE ENGINES ARE MADE THAT WAY. Mack builds more vital parts in its own factories than any other maker. No other fire apparatus comes under such strict control. *The result* . . . performance that's heavy duty—power that's rugged—efficiency that slashes operating costs.

MACK FIRE ENGINES ARE GOING TO KEEP THEIR LEAD. Mack resources are the largest in the industry. Unique large-scale research laboratories are constantly experimenting. The name Mack stands for the latest designs and improvements in the fire engine field.

MACK FIRE ENGINES ARE EASY TO KEEP IN PERFECT FIGHTING TRIM. 70 conveniently located factory branches are always ready for quick, economical servicing of all Mack engines. . . Write for complete information on the fire apparatus that has the most of everything fire apparatus should have. . . Write Mack today!

The Mack Fire Apparatus Line includes triple and quadruple pumpers from 200 to 1500 gallon capacity, hose wagons, city service ladder trucks, squad cars—comprising 14 distinct and specialized models. Mack is proud of building the best. We invite comparison. We solicit inquiries.

Mack

MACK MANUFACTURING CORPORATION, FIRE ENGINE DIVISION, LONG ISLAND CITY, N. Y.

Watch Towers Used For Spotting Wartime Fires

This account of the use of fire watch towers in England has been extracted from a paper by Chief T. A. Varley, printed in the July 1941 Quarterly of the Institution of Fire Engineers, under the heading "The Value of the Fire Observation Post to the Fire Service." Chief Varley, now Chief Regional Fire Officer, Cardiff Region, was formerly Chief Officer at Blackpool, England.

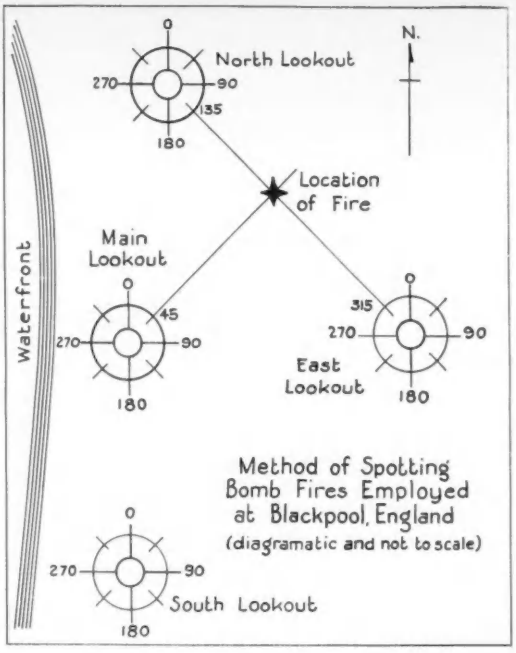
IT is the general opinion amongst members of the fire service that the high towers which usually form part of the fire stations are erected solely as hose-drying towers. It may surprise those members to learn that such was not their original purpose. Before these days of rapid communication by means of the telephone and telegraph, brigades depended upon fires being observed, and to that end towers were eminently suitable, as persons perched at a high altitude were able to locate an outbreak of fire quickly, and the fire brigade was able to receive early intimation of its being required. Such towers were known as watch towers, and even today the hose towers of many fire stations are built with a "lookout" on the top, and so could fill the dual role of hose dryer and observation post.

Today as a result of heavy aerial attack, we often find the same conditions as existed prior to the introduction of the telephone and fire alarm system, that is no means of communication other than by verbal message. Many towns have, as a result of a blitz, found to their sorrow that the telephone system is most vulnerable.

To my pleasure, the Home Office Fire Brigades Division, in September 1940, issued a circular indicating that observation or watching posts had proved valuable for detecting and locating fires and other incidents caused by enemy action. Having seen their value, I had in my area established posts prior to the circular.

As it must always be borne in mind that in the case of aerial attack it is highly probable that the telephonic communication will be seriously interfered with, if not altogether destroyed, it is desirable that the sites of observation posts be carefully chosen so that the whole of the area is covered by a minimum number of posts, thus reducing the number of personnel required for messenger service.

My town's most prominent feature, its famous Tower, was an obvious choice for an observation post. Being geographically well situated in the center of the sea front it became the main post. Three others were selected, one north, another south (both on the coast), and the third at the edge of the town in the east. The last three posts are therefore situated at the points of a triangle, the main post (the Tower) being situated at the center of the base of that triangle. The three additional posts are existing towers on high buildings, each commanding a good view of their part of the town.



When a fire or bomb is noticed, each lookout sights across his map or plane table. As the lookouts report the angles of their observations the men in the central control room plot these angles across a map of the city. The point where the lines cross is the exact location of the fire.

Method of Spotting Bomb Fires Employed at Blackpool, England
(diagramatic and not to scale)

The main post is manned day and night by members of the service trained in observation and having a thorough knowledge of the topography of the town and district. The three other posts are manned by part-time personnel, also fully trained, who take up duty at night and on all air raid alerts.

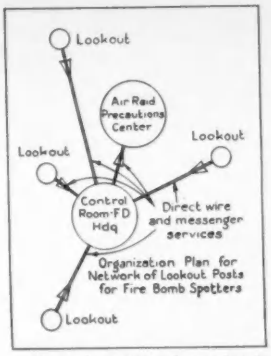
At each post, there is a plane table, a circular disc 9 inches in diameter, marked off in degrees from 0 to 360, with 0 at true north. The plane table is set due north so that it cannot be disturbed and produce inaccurate readings. On each plane table is a sighting vane hinged on the top of a center pin 8 inches above the plane table, which allows the sighting vane to be moved in the direction of the incident and elevated or depressed. Beneath the sighting vane, fixed to the center pin, is a pointer showing the degrees on the plane table to which the sighting vane has been moved.

Each post is coupled by direct telephone to what is known as the chief observer's room, which is situated alongside and in communication with the main fire control room (fire alarm headquarters). In addition to the direct telephone lines a messenger with motor cycle or car is attached to each post, ready to transmit information immediately should there be any failure of the telephone system.

On one side of the chief observer's room are telephones from the posts as well as a direct line to the main Air Raid Precautions control room for the transmission of information not directly affecting the fire service, such as high explosive bombs, land mines, paratroops, possible enemy landings, etc. It will thus be seen that the posts can be worked in conjunction with other services, which is especially useful where manpower and expense have to be taken into consideration.

In the chief observer's room there is a large scale map of the town and district set on a table and covered by glass. On the map the lookout posts are shown quite clearly by means of a circle marked off in degrees from 0 to 360, with 0 situate due north corresponding with the plane tables at the lookout posts. From the center of the circle (the exact site of the post) through a hole drilled in the glass top, runs a string from a spring drum on the underside of the table. Attached to the string is a sucker which can readily be affixed to the glass top.

Immediately, as an observer at a post sees an incident, he takes a sight on his instrument and transmits the information to the chief observer, "a fire has been observed at 45 degrees." The Chief Observer runs out the line from that post over the degree given and affixes the sucker to his table. He then knows that somewhere along that line a fire is in progress. Invariably the fire will be observed from a second and third post. They pass in their bearings. Lines are run from their posts on the map, and the point



Upon observing a fire or bomb each lookout station reports by direct wire to the control room at fire headquarters. Messengers are also provided at each post in the event that telephone wires are put out of service. The fire headquarters or control center also has a direct wire to the air raids precautions center. Two-way radio could also be used for communications between lookouts and fire headquarters.

of intersection gives the exact location of the fire. If a report is not immediately received by the chief observer from a second post, he contacts by phone the one which, in his opinion, is in the most advantageous position for seeing the incident, asking for a check. When the point of the incident is established, the chief observer passes the information to the fire control room from whence instructions are given to the nearest station to respond.

THE method of plotting strings of incendiary bombs is an extension of the foregoing. The observers give the chief observer bearings indicating the beginning and end of the string. He runs lines from the reporting post on the map through each degree given. This gives him a V from that post. A V is also run from the second post to report. At the intersections of the V's small markers are attached to the glass top. This gives the extent and direction of the line of bombs. The exact nature of the terrain in which the bombs have dropped can thus be ascertained and steps taken to cope with any fires which might develop.

The value of this system has been proved time and time again. I would say that since the establishment of the posts, information has been given by them which has enabled the fire service and other services to be on the spot before either the public themselves or members of the ARP services could pass the information over the normal telephone. On no occasion has an incident been missed. I am happy to say that the observation post system enabled me to obtain early information of incidents and so concentrate all available resources just when and where they were needed.

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FIGHT SMOKE AND GAS IN SAFETY AND COMFORT!

The M·S·A ALL-SERVICE GAS MASK

WITH THE ALL-VISION FACEPIECE

Well-known to progressive Departments everywhere is this famous M.S.A. gas mask—the only mask ever to be approved* for protection against all industrial smokes, poisonous gases and vapors (including carbon monoxide) encountered singly or in combination when emergencies occur. The hard school of experience under fire has conclusively proved the all around safety and utility of the All-Service Mask—now finer than ever with its scientifically-engineered All-Vision Facepiece.

We invite you to see for yourself how great is this mask's seeing, breathing and wearing comfort—how safe is its smoke-and-gas protection! Simply have us demonstrate the facts, without obligation.

*Officially approved by the U.S Bureau of Mines BM1405.

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District Representatives in Principal Cities

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NOW is the time to organize and rehabilitate your fire defenses!
Do you have enough Fire Hose on hand so that if fire broke out in 10, 20 or 30 places you could keep it under control?
The people of your community depend on YOU!
CHECK OVER YOUR RESERVE FIRE HOSE NOW.

GENUINE WAX AND PARA GUM TREATED FIRE HOSE
FABRIC FIRE HOSE COMPANY
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N.F.P.A. Membership

Every member receives this handsome membership certificate.

Membership with unusual advantages is available to fire companies and fire departments through the Volunteer Firemen's Section of the National Fire Protection Association. Here's the simple plan:

INDIVIDUAL membership in the National Fire Protection Association costs $10 per year. The membership plan for the Volunteer Firemen's Section is designed to give each fire company the advantages of N.F.P.A. membership. The fire company, as a member, receives at its headquarters a complete set of all regular N.F.P.A. literature, including the *Quarterly* magazine, as issued. In addition, as a special service to the Volunteer Firemen's Section, each fire company holding N.F.P.A. membership is entitled to have copies of the magazine VOLUNTEER FIREMEN sent to the home addresses of 10 firemen each month. If more than 10 firemen want to receive the magazine, an additional $1.00 should be sent in with the membership fee for each fireman in excess of 10 enrolled.

Because of the large amount of material mailed to members, not less than $10 can be accepted from any company.

$10.00-$3.00-$2.00 EACH MONTH

PYRENE PRIZE LETTER CONTEST

THREE firemen this month are picking up a little extra cash for Christmas by the simple expedient of having sent in letters telling of fires where approved fire extinguishers have been used successfully. Why don't you try your hand at jotting down a story showing the value of having an extinguisher handy. It's the story that counts, not letter writing ability. Get the facts down on paper and we will attend to any rewriting necessary to get the story into the space available in these columns.

This is a contest for firemen. Any fireman, whether a private or a chief, whether volunteer or paid, has the same chance to win in this easy contest designed to show what can be done with approved fire extinguishers.

The contest is sponsored cooperatively by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN to bring forth the lessons learned from actual fires showing the usefulness of fire extinguishers.

FIRST PRIZE—$10.00

GEORGE H. KUEHLTHAU, *Chief*

Fire Department, West Bend, Wisconsin

Extinguisher Helped Save Workman

What might have resulted in a serious fire as well as serious burns to an employee of the Wisconsin Gas and Electric Co. in West Bend, was avoided by the use of a pressure type carbon tetrachloride extinguisher in June, 1939. On a Saturday afternoon when the line crew was not working, one workman thought it would be a good time to clean the engine of his car. He partly filled a pan with gasoline and shoved it under the car and then got on a creeper and started the cleaning. He found a loose bolt. While trying to tighten this, his wrench slipped and struck a spark setting fire to the floor and under part of the car, as well as his arms and clothing. Luckily, his fellow workers were there to come to his aid. While one called the fire department the other turned the extinguisher on the burning clothing and then on the car putting the fire out in short order. When we arrived all we had to do was to get the particulars and to ask them if they had had enough experience to remember not to use gasoline for cleaning purposes.

SECOND PRIZE—$3.00

JOHN T. LAMPLUGH

Linwood Fire Company, No. 1
Linwood, Pa.

Extinguisher Saved Home

In a nearby town in Delaware during the month of October 22 years ago, before the establishment of the local volunteer fire company, a serious blaze was successfully fought and brought under control with small loss by effective use of a wheeled type soda-acid extinguisher. The weather being chilly at the time, a log fire had been burning all day in the fireplace of a two story frame house. Along toward nightfall, smoke was noticed curling out along the top of the mantelpiece over the fireplace by a member of the household who went outside to make further investigation and found the entire side of the dwelling in flames. At this point the master of a nearby estate came on the scene with the extinguisher, saving the $8,000 house from destruction. The loss was limited to approximately $100. It was learned that studding placed in the chimney by carpenters during construction was responsible for the fire.

THIRD PRIZE—$2.00

HAROLD A. HERSEY, *Chief*

Fire Department, Savanna, Illinois

Refrigerator Motor Fire

It was 7:53 P. M. on October 7th, that the lights went out in fire headquarters. At 8:30 we received a call to a beer distributing agency one and a half blocks from the station. Upon arrival we found that a 5 horse power electric motor used to run the refrigerating unit was on fire. We immediately extinguished the blaze with a 1½-quart carbon tetrachloride extinguisher. I then knew what had caused the trouble with our lights. A fuse at a transformer on a pole near the beer agency had been blown out as a result of the fire. I immediately called the power plant and informed them where the trouble was. The utility company had not known where the trouble was until the fire department notified them of what we found. A short time later an electrician had replaced the fuse and restored service.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.

2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.

3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.

4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.

5. Only one letter may be submitted each month.

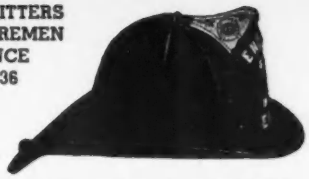
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.

7. Letters received after the 8th day of the month will be judged in following month's competition.

8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.

9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

OUTFITTERS TO FIREMEN SINCE 1836



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WINTER EQUIPMENT

Let us outfit you, from head to foot. Secure the advantages of buying ALL you need from ONE source, with the guarantee of satisfaction of America's oldest firm of firemen's outfitters.

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Helmets, with Cushion Lining and Winter Earlaps
Warm Turnout Coats and Trousers
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444 LAFAYETTE STREET - NEW YORK

A Model Records and Reporting System for Fire Departments

Size of book, 8½ x 11 inches
87 pages, 27 forms, 7 figures
Price, $2 each, postpaid

This manual suggests a detailed and well-rounded plan that should help to solve many of the problems that now confront fire chiefs in small as well as large cities and towns. It shows how a records and reporting system should operate. It includes copies of the 27 forms considered important in fire department work.

The record forms contained in this book have met with such acceptance by fire chiefs and fire departments that most of the forms have now been separately printed to meet the demands of departments wishing to purchase supplies of the blanks. Write for a price list for the various record forms. If your department has not yet obtained a copy of the Model Records and Reporting System book ask for a circular describing it so that you will have full information on the many reporting blanks available.

National Fire Protection Association
INTERNATIONAL
60 Batterymarch St., Boston, Mass.

Annual Memphis Instructors' Conference

THE 14th annual Fire Department Instructors' Conference is scheduled to be held at Memphis, Tennessee, January 6-9, 1942. This is the important meeting of the year for fire department drillmasters and those in charge of state and regional training programs. Last winter fire training officials from 26 states were present and an even larger representation is expected for the coming meeting. The Memphis Fire Department, Irby C. Klinck, Chief, and the Fire Prevention Department of the Western Actuarial Bureau, Chicago, Richard E. Vernor, Manager, are joint sponsors of the conference.

Maryland Has New War Training Textbook

CHIEF J. W. Just, Director, Fire Service Extension, University of Maryland, announces the publication of a 111-page text titled "War Gases, Incendiaries, Infernal Machines and Sabotage, and Fire Fighting as Applied to Military Explosives and Ammunition." This text is designed to serve as a manual for instructors, to be used in training firemen, auxiliary firemen and civilian groups. It is arranged with a detailed index covering all gases and incendiary materials mentioned in the publication. Also included is a series of 91 questions for use of instructors. Copies of the manual may be obtained for $1.75 each by writing to Chief J. W. Just, College Park, Maryland.

ANNOUNCEMENTS

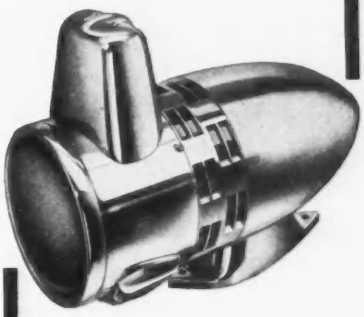
AMERICAN - LAFRANCE - FOAMITE CORPORATION, Elmira, New York, is offering free to fire departments an illustrated fire hose maintenance chart printed in two colors. It is 18 by 24 inches in size and designed for hanging on the fire station wall.

THE Borough of Bridgewater, Pennsylvania, is expecting delivery of a new pumper and wishes to sell a Boyer fire truck equipped with a 732-gallon Hale rotary pump, two 40-gallon chemical tanks and body with 1,000-foot hose capacity. Anyone interested should contact Councilman Harry O. Davis, 736 Market Street, West Bridgewater, Pa.

THE Stone Harbor Volunteer Fire Company No. 1, Stone Harbor, New Jersey, would like to dispose of a 1930 ambulance fully equipped with new motor and new tires and ready for service. Persons interested should write Harry G. Martin, Secretary, Stone Harbor Volunteer Fire Company.

FEDERAL

MODEL 78
COASTER
SIREN



The Traffik-King siren is an exceptional performer. It has a double-deep tone, and an oscillating light. It can be furnished with or without electric brake.

FEDERAL ELECTRIC CO., Inc.
"SIREN HEADQUARTERS"
8717 SO. STATE STREET *CHICAGO*

FYR-FYTER

INSTANT

1¾ and 2½ Gal. Sizes

The Instant is not only popular for fire department use but also for private protection. Operating efficiently at a temperature of 40° below zero, it will extinguish rapidly all classes of fires including small fires in gasoline, oil, grease, paint, etc. It is the most efficient extinguisher to use on fires in rubber.
Made also in the 20- and 40-gallon wheel type.

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If you are interested in adding to your income by spare time work or in building a permanent business for yourself without investment in stock, fixtures, etc., write for our new Dealer's Plan to

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Dept. 20-72 **DAYTON, O.**

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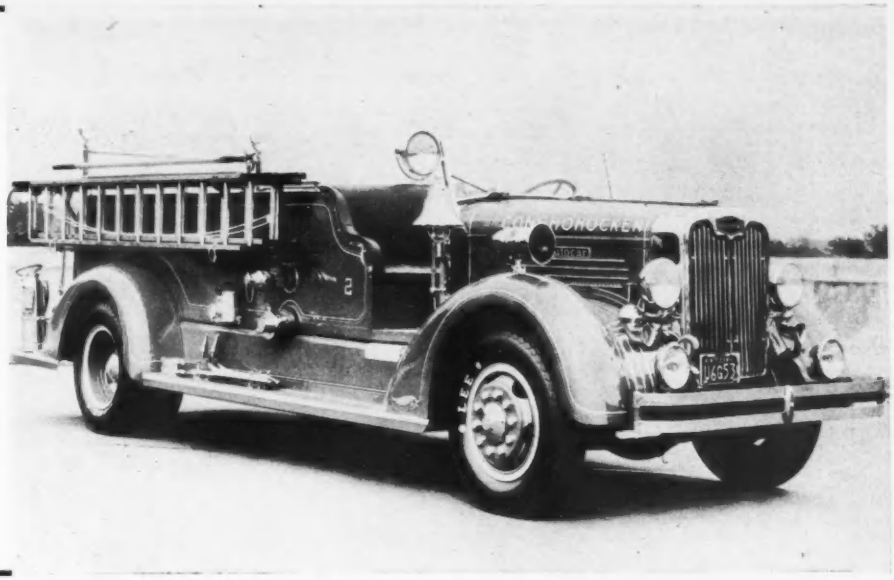

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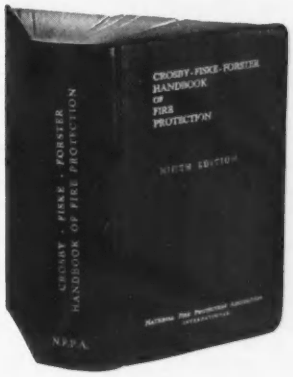

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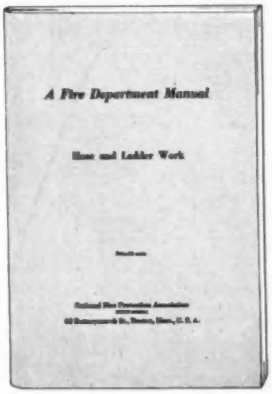

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